

What is claimed is:

1. An oligonucleotide comprising an antisense nucleic acid sequence that specifically binds to an antioxidant enzyme start codon, wherein the sequence is about 18 to 26 nucleotides in length.
2. The oligonucleotide of claim 1, wherein the nucleic acid is about 20 nucleotides in length.
3. The oligonucleotide of claim 1, wherein the nucleic acid sequence is phosphothiolated.
4. The oligonucleotide of claim 1, wherein the antioxidant enzyme is manganese superoxide dismutase, copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, or cytosolic glutathione peroxidase.
5. The oligonucleotide of claim 4, wherein the antioxidant enzyme is manganese superoxide dismutase, catalase, or phospholipid glutathione peroxidase.
6. The oligonucleotide of claim 1, wherein the nucleic acid sequence is 90% identical to the nucleic acid encoding an antioxidant enzyme.
7. The oligonucleotide of claim 1, wherein the nucleic acid sequence is 100% identical to the nucleic acid encoding an antioxidant enzyme.
8. A method of treating an antioxidant enzyme malfunction disorder in a mammal comprising reducing antioxidant enzyme levels in a cell by administering a therapeutic agent comprising an oligonucleotide of claim 1.

9. The method of claim 8, wherein the disorder is a tumor, heart disease, arthritis, or neurodegenerative disease.
10. The method of claim 9, wherein the disorder is a tumor.
- SUB A3* 11. ~~The method of claim 9, wherein the therapeutic agent is injected into the tumor.~~
12. The method of claim 8, wherein the mammal is a human.
13. The method of claim 8, wherein the therapeutic agent further comprises a delivery vehicle.
14. The method of claim 13, wherein the delivery vehicle is lipofectamine or *N*-[1-(2,3-dioleoyloxy)propyl]-*N,N,N*-trimethylammonium methyl sulfate ("DOTAP").
- SUB A4* 15. ~~The method of claim 8, wherein the nucleic acid sequence is phosphothiolated.~~
16. The method of claim 8, wherein the antioxidant enzyme is manganese superoxide dismutase, copper and zinc superoxide dismutase, catalase, phospholipid glutathione peroxidase, or cytosolic glutathione peroxidase.
17. The method of claim 16, wherein the antioxidant enzyme is manganese superoxide dismutase, catalase, or phospholipid glutathione peroxidase.
18. ~~The method of claim 8, wherein the nucleic acid sequence is 90% identical to the nucleic acid encoding an antioxidant enzyme.~~
- SUB A5* 19. ~~The method of claim 8, wherein the nucleic acid sequence is 100% identical to the nucleic acid encoding an antioxidant enzyme.~~
- Added A4*